

**Amendments to the Drawings:**

Please replace one drawing sheet (1/2) with the enclosed Replacement Sheets containing an amended Fig. 2.

See attachment of Replacement Drawings.

**REMARKS****I. Status of the Application**

Claims 1-20 are pending in this application. In the January 3, 2007 office action, the

Examiner:

- A. Objected to the drawings under 37 CFR 1.121(d);
- B. Objected the specification for minor typographical errors;
- C. Rejected claim 1, 2 and 4 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,021,677 to Igarashi et al. (hereinafter "Igarashi");
- D. Rejected claims 3, 5 and 6 under 35 U.S.C. §103(a) as allegedly being obvious over Igarashi in view of U.S. Patent Publication No. 2002/0084907 to Rattman et al. (hereinafter "Rattman");
- E. Rejected claim 7 under 35 U.S.C. §103(a) as allegedly being obvious over Igarashi in view of Rattman in further view of U.S. Patent No. 5,451,931 to Muller et al. (hereinafter "Muller");
- F. Rejected claim 10 under 35 U.S.C. §103(a) as allegedly being obvious over Igarashi in view of Rattman in further view of U.S. Patent No. 5,138,302 to Nagaoka et al. (hereinafter "Nagaoka");
- G. Rejected claims 11, 12 and 16 under 35 U.S.C. §103(a) as allegedly being obvious over Igarashi in view of Rattman in further view of U.S. Patent No. 5,939,994 to Meier et al. (hereinafter "Meier");
- H. Rejected claim 13 under 35 U.S.C. §103(a) as allegedly being obvious over Igarashi in view of Rattman in further view of Muller in further view of Nagaoka;
- I. Rejected claim 13 under 35 U.S.C. §103(a) as allegedly being obvious over

Igarashi in view of Rattman in further view of Nagaoka in further view of Meier;

J. Deemed claims 8, 9, 14, 15 and 18 allowable if rewritten in independent format.

In this response, the applicant has amended Fig. 2 and respectfully traverses the objection to Fig. 3. The applicants has further amended the specification, as well as claims 1, 5 and 7 to further clarify the claimed invention. Applicants have canceled claim 20, without prejudice, and have added new claim 21.

## II. The Objections to the Drawings

The Examiner objected to the drawings, stating that the drawings should show details of the “window opening, gap and one-part frame”. The Examiner further stated that Figure 2 and Figure 3 were not clear.

Figure 2 has been amended, as has portions of the specification in order to address the Examiner’s concerns. In particular, Figure 2 has been amended to include the reference characters 13W, 14W and 15W to identify the location of the “window openings”, as well as to include reference characters 14F and 15F to identify the “one-part frames”. It is believed that those elements are shown in the drawings in sufficient detail to allow one of ordinary skill in the art to make and use the claimed invention.

The amendments adding the reference numbers do not constitute new matter. As discussed in the specification as filed, the window openings are openings in the housing 13, 14, 15 that face the central portion of the measuring chamber (6, 7). (See specification at p.3, lines 21-26). These window openings are clearly shown in Fig. 2, and now have reference

characters 13W, 14W and 15W to aid in their identification.

With regard to the “one-part frames”, the specification teaches that these structures form a frame or border of each window opening, and extend from the floor to the roof in an uninterrupted manner. (See p.3, line 33 to p.4, line 6). Because the one-part frames extend uninterrupted, there is no risk of a seam opening in the middle of the frame due to misalignment that allows spurious light to escape. (*Id.*) The new reference numbers 14F and 15F identify examples of such “one-part frames” that extend from floor to ceiling and form a border of the window openings 14W and 15W, respectively.

With respect to the “gap”, it is respectfully submitted that the identification of the window openings 13W, 14W and 15W make the “gaps” sufficiently clear. The “gaps” are defined as the distance between the light devices 11, 12, 12’ and their respective “window openings” 13W, 14W, 15W. For example, the distance, space or “gap” between the front edge of the light source 12 and the window opening 14 is clearly depicted and readily identifiable in Fig. 2. It is believed that no further amendment is necessary to address the Examiner’s objections.

With regard to the objection to Fig. 3, applicant respectfully traverses. It appears that the Examiner may have suggested that the “window openings”, “gap” or “one-part frame” might be found in Fig. 3. However, as discussed above, those structures are all depicted in Fig. 2. Accordingly, no amendment to Fig. 3 is provided herewith.

In view of the foregoing, it is respectfully submitted that the objections to the drawings are moot and should be withdrawn.

### III. The Objections to the Specification

The Examiner objected to the specification, stating that it should be checked for errors

and further requiring a change in claim 7, where an alternate spelling of polarization was used. In this amendment, claim 7 has been amended, and a corresponding paragraph in the description has been amended. The specification has also been checked for errors. It is respectfully submitted that the Examiner's objection to the specification should be withdrawn.

#### IV. The Anticipation Rejection of Claim 1

The Examiner rejected claim 1 as allegedly being anticipated by Igarashi. It is respectfully submitted that the rejection may have occurred as a result of the confusion over the claim terms and how exemplary embodiments of the claim elements are depicted in the drawings. The amendments to the description and drawings, as well as to claim 1, further clarify the novelty of the claimed subject matter.

As will be discussed below in detail, Igarashi fails to disclose or suggest

a housing having an elongated shape and a small window opening and,  
wherein the at least one light source is arranged in a rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed,

as recited in claim 1.

#### A. The Present Invention

Claim 1, as amended, is directed to a scattered light smoke detector with an optical measuring chamber. The detector includes a sensor arrangement, a labyrinth system and a housing having an elongate shape. The sensor arrangement includes at least one light source and one light receiver. The labyrinth system has screens arranged on the periphery of the measuring chamber. The housing has an elongated shape and a small window opening that is nearer the measuring chamber than a rear side of the housing. The at least one light source is

arranged in a rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed.

The present invention thus includes light sources that are recessed in a housing away from the window opening through which the light is propagated toward the measuring chamber. By way of example, Fig. 2 of the present application shows a light source 12' in an elongate housing 15. The window opening 15W defines the front of the housing. The light source 12' is clearly recessed, and thus is arranged in a rear part of the housing. The recessed light source provides an advantage of placing the light source deeper away from areas in which pollutants or dust may interfere with the operation of the light source. (See specification at p.4, lines 13-17).

**B. Igarashi Does Not Show a Light Source in a Rear Part of a Housing as Claimed**

Igarashi fails to disclose “at least one light source arranged in the rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed”, as claimed in claim 1.

Igarashi shows a smoke detector. Shown in Fig. 1 is a light source 77, a measuring chamber 70, and a light receiver 78. The light source 77 is disposed within an unnumbered housing (in the vicinity of the reference number 72), which has an unnumbered window opening that borders the measuring chamber 70.

The light source 77 of Igarashi is clearly *not* located in a rear part of its housing. To the contrary, the front of the light source 77 is almost touching the window opening to the measuring chamber. Thus, there is no gap of significance created between the light-

penetrated optical surface of the light source 77 and the window opening. In contrast to embodiments of the present invention, where the light source is located in a rear part of the housing, the light source 77 of Igarashi does not rely on spatial distance from the measuring chamber 70 to inhibit pollutant interference with the light source 77.

Accordingly, Igarashi fails to disclose or suggest “at least one light source arranged in the rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed.” The Igarashi light source is *not* located in a rear part of its housing. There is not a relatively large gap between the optical surface of the light source and the window opening of Igarashi.

For at least both of these reasons, Igarashi fails to teach or suggest each and every element of claim 1. As a consequence, it is respectfully submitted that the anticipation rejection of claim 1 over Igarashi is in error and should be withdrawn.

#### V. Claims 2 and 4

Claims 2 and 4 both stand rejected as allegedly being anticipated by Igarashi. Claims 2 and 4 both depend from and incorporate all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the anticipation rejection of claims 2 and 4 is in error and should be withdrawn.

In addition, claim 2 is allowable for additional reasons. Claim 2 recites that the gap between the window opening and the optical surface of the light source “is greater than the diameter of the optical surface”. As shown in the exemplary embodiment of Fig. 2 of the present application, the distance between the front edge of the light source 12’ and the window opening 15W is clearly larger than the diameter of the front lens/surface of the light

source 12'.

Referring to Igarashi, the distance between the front of the light source 77 and the window to the measuring chamber is much less than the diameter of the light source 77. Accordingly, Igarashi fails to teach or suggest this additional limitation of claim 2. For this additional reason, it is respectfully submitted that the rejection of claim 2 is in error and should be withdrawn.

VI. Claims 3, 5 and 6

Claims 3, 5 and 6 stand rejected as allegedly being obvious over Igarashi and Rattman. Claims 3, 5 and 6 depend from and incorporate all of the limitations of claim 1. Accordingly, each of claims 3, 5 and 6 incorporates a limitation directed to "at least one light source arranged in the rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed". As discussed above in connection with claim 1, Igarashi fails to teach or suggest these limitations.

The Examiner cites Rattman as providing the teaching of delimiting the measuring chamber upward, the housing extending downward, and the labyrinth system being plugged from below. The modifications of Igarashi proposed by the Examiner in the rejection of claims 3, 5 and 6 do not cure the deficiency of Igarashi with respect to claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the obviousness rejections of claims 3, 5 and 6 are in error and should be withdrawn.



VII. Claims 7, 10-13, 16 and 19

Claims 7, 10-13, 16 and 19 stand rejected as allegedly being obvious over Igarashi, Rattman and one or more other references. Claims 7, 10-13, 16 and 19 depend from and incorporate all of the limitations of claim 1. Accordingly, claims 7, 10-13, 16 and 19 incorporate a limitation directed to “at least one light source arranged in the rear part of the housing, so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source a relatively large gap is formed”. As discussed above in connection with claim 1, Igarashi fails to teach or suggest such limitations. None of the modifications of Igarashi proposed by the Examiner in the rejections of claims 7, 10-13, 16 and 19 cure the deficiency of Igarashi with respect to claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the obviousness rejections of claims 7, 10-13, 16 and 19 are in error and should be withdrawn.

VIII. New Claim 21

New claim 21 has been added, and includes limitations similar to a combination of claims 1 and 2. Accordingly, claim 21 is allowable for at least the reasons set forth above in connection with claims 1 and 2. New claim 21 further recites that the light receiver has a housing and is also disposed in a rear part of its housing.

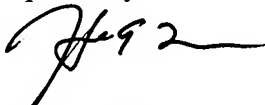
IX. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is therefore respectfully requested.

In the event applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account 13-0014.

April 3, 2007

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'H. C. Moore', with a stylized flourish at the end.

Harold C. Moore  
Attorney for Applicants  
Attorney Registration No. 37,892  
Maginot Moore & Beck  
Chase Tower  
111 Monument Circle, Suite 3250  
Indianapolis, Indiana 46204-5109  
Telephone: (317) 638-2922